

REMARKS

The indication that claims 2, 3 and 7-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, is acknowledged. However, such claims have been retained in dependent form at this time, since applicants submit that claims 1 and 4-6 patentably distinguish over the cited art, as will become clear from the following discussion.

By the above amendment, the specification has been amended to correct minor informalities as well as to more appropriately utilize the term "substrate" rather than the term "board" with reference to the substrates 11 and 12 as disclosed and illustrated in this application. Likewise, claim 1 has been amended to delete the term "boards" in the recitation of a pair of opposed boards and now recites a pair of opposed and facing substrates, so as to provide proper antecedent basis for the later recitation of "said facing substrates" in claim 1 and the dependent claims thereof.

Applicants note that in accordance with the present invention, as recited in claim 1 and as illustrated in Fig. 5 of the drawings, for example, a liquid crystal display apparatus comprises a pair of opposed and facing substrates 11 and 12, a liquid crystal layer 10 and a liquid crystal driving unit including transistor 19, for example, which are held in being sandwiched between the facing substrates, and polarizer and phase plates which are located on an upper side and on a lower side of the facing substrates. That is, as described in the specification of this application, there is provided an upper-side polarizer 33 and an upper-side face plate 31 provided on an upper side of the substrate 11 with a lower side polarizer 34 and a lower side phase plate 32 being provided on the lower side of the substrate 12. As recited in claim 1, "said polarizer and said phase plate located on said lower side of said facing substrates forming an elliptical polarizer". (emphasis added) Additionally, claim 1 recites the feature that a pixel of the liquid crystal display apparatus includes a reflection display unit whose reflections applied voltage characteristic is a normally-

closed type and a transmission display unit whose layer of thickness is thicker than that of a liquid crystal layer constituting the reflection display unit. Applicants submit that irrespective of the position set forth by the Examiner, the cited art does not disclose the polarizer and the phase plate located on the lower side of the facing substrate forming an elliptical polarizer, as will be discussed below.

Applicants note that polarized light is classified according to the orientation of the electrical vector and is classified as circularly polarized light, linearly polarized light and elliptically polarized light. A strict definition of "circular polarization of light" is that while disassembling its electrical vector into a certain X-axis component and Y-axis component, the intensity of the X-component and the Y-component becomes completely equal. A strict definition of "linear polarization of light" is the polarization in which either one of the X-axis component or the Y-axis component becomes "0". Therefore, a strict definition of "elliptical polarization" is the polarization which excludes both the strictly defined circular polarization and the strictly defined linear polarization. Furthermore, applicants submit that as recognized in the art, circular polarization is considered to include polarization in which the intensity of the X-axis component and the Y-axis component are substantially equal so that circularly polarized light is obtained.

Thus, applicants submit that as is known in the art, an elliptical polarizer differs from a circular polarizer and a linear polarizer, and in accordance with the present invention, the polarizer and the phase plate located on the lower side of the facing substrates as represented by the polarizer 34 and the phase plate 32 in Fig. 5 of the drawings, for example, are combined so as to form an "electrical polarizer".

As to the rejection of claim 1 under 35 U.S.C. 102(b) as being anticipated by Kubo et al (JP 2000-19010) and the rejection of claims 1 and 4-6 under 35 U.S.C. 102(e) as being anticipated by Kubo et al (U.S. Patent No. 6,295,109), such rejections are traversed, and reconsideration and withdrawal of the rejections are respectfully requested.

As to the requirements to support a rejection under 35 U.S.C. 102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if the element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Moreover, the court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

With regard to Kubo et al (JP 2000-19010), applicants note that such document is a Japanese language document and the English language abstract provided does not appear to describe the features referred to by the Examiner. Applicants note that the Japanese language document represents a priority document of Kubo et al (U.S. Patent No. 6,295,109), and it is assumed that such U.S. patent provides an English language disclosure of the Japanese language document. Applicants submit that with respect to the Japanese language document, irrespective of the contentions by the Examiner, the polarizer and phase plate combination 7/10, which is located on the lower side of the facing substrates, does not form an elliptical polarizer. With regard to Kubo et al, U.S. Patent No. 6,295,109, applicants also submit that irrespective of the position set forth by the Examiner, the polarizer and phase plates 7/10 combination also does not form an elliptical polarizer.

Applicants submit that Kubo et al, U.S. Patent No. 6,295,109, discloses a liquid crystal display apparatus of vertical orientation type. Assuming that the liquid

crystal layer is in complete vertical orientation, then the retardation becomes "0" completely. In accordance with the patent, for carrying out dark display in a reflecting display, a "circular polarizer" (emphasis added) is required as a layer product for the combination of the phase plate and polarizer. For example, Kubo et al in claim 3 thereof, provides that the transmission axis of the second polarizer and the second phase compensation element make an angle of about 45° which is a requirement for circularly polarized light. That is, col. 22, lines 35-39 of Kubo et al (U.S. Patent No. 6,295,109), provide that with reference to Fig. 13A relating to black display, "The $\lambda/4$ wave plate 10 is arranged so that the slower optic axis thereof is tilted at 45° with respect to the transmission axis of the polarizer 9. Thus, the light transmitted through the $\lambda/4$ wave plate 10 becomes circularly polarized light." (emphasis added) With respect to the white display of Fig. 13B, and the effect of the polarizer 9 and the wave plate 10, col. 22, lines 66-67, provides that "The process until the light is transmitted through $\lambda/4$ wave plate 10 is the same as above and will not be described." (emphasis added) Thus, it is apparent that the operation in both the black display and the white display with respect to the combination of the polarizer 9 and $\lambda/4$ wave plate 10 is the same, wherein a "circular polarizer" (emphasis added) is formed. Applicants note that the specification of this patent clearly recognizes circularly polarized light, linearly polarized light and elliptical polarized light, which terminology is well accepted in the art. Applicants submit that the obtaining of circularly polarized light is also disclosed in Kubo et al (U.S. Patent No. 6,295,109) when a wave plate 12 is utilized in conjunction with the wave plate 10 and the polarizer 9, as illustrated in Fig. 18 of the drawings of this patent. As described in col. 40, lines 14-22, with respect to the combination of the $\lambda/4$ wave plate 10, polarizer 9 and $\lambda/2$ wave plate 12, "the light transmitted through the $\lambda/4$ wave plate 10 is circularly polarized light." (emphasis added) Applicants submit that irrespective of the contention by the Examiner that Kubo et al disclose "said polarizer and said phase plate located on said lower side of said facing substrates forming an

elliptical polarizer", there is no disclosure or teaching in the sense of 35 U.S.C. 102 in Kubo et al (U.S. Patent No. 6,295,109) that such combination forms an "elliptical polarizer", but rather, Kubo et al discloses that the aforementioned combination represented by a combination of the polarizer 9, wave plate 10 and optionally wave plate 12 provide for "circularly polarized light" as clearly described in the specification of Kubo et al. Applicants submit that there is no disclosure in Kubo et al of the aforementioned combination of elements forming an elliptical polarizer as recited in claim 1, and should the Examiner contend that such feature is inherent in the disclosed combination of Kubo et al, reference is made to In re Robertson, supra, which requires a specific disclosure and that probabilities or possibilities are not sufficient to support a rejection under 35 U.S.C. 102. Thus, applicants submit that claim 1 patentably distinguishes over Kubo et al (JP 2000-19010) and Kubo et al (U.S. Patent No. 6,295,109) in the sense of 35 U.S.C. 102 and claim 1 and its dependent claims should be considered allowable thereover.

With respect to dependent claims 4-6, as recognized by the Examiner, such claims which directly depend upon claim 1, recite the feature of a first lower-side phase plate and a second lower-side phase plate, while defining a range of retardation for the first and second lower-side phase plates which differ from one another and other features. The Examiner has recognized that the ranges recited are not disclosed by Kubo et al, and as pointed out above, do not result in an elliptical polarizer, as claimed in independent claim 1, with the Examiner contending that the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Contrary to the position set forth by the Examiner, applicants submit that the disclosure of this application describes the recited ranges as enabling improved results. Further, applicants submit that contrary to the position set forth by the Examiner relying on the citation of In re Woodruff, reference is made to the more recent decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection

indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge". The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Thus, it is apparent that the Examiner cannot ignore recited limitations which have clear disclosure in the specification and contend that it is obvious to provide such features. More particularly, as described at page 47, lines 5-8 of the specification of this application, by using the two sheets of lower-side phase plates, it has become possible to increase the contrast ratio on the transmission display. Thus, applicants have clearly indicated the criticality of the recited features and the unexpected improvements obtained thereby. Applicants submit that such features cannot be ignored and it is readily apparent that Kubo et al, whether represented by the Japanese language document or the U.S. patent, fails to disclose such features in the sense of 35 U.S.C. 102 as well as failing to disclose the formation of an elliptical polarizer as recited in independent claim 1. Thus, applicants submit that claims 4-6 also patentably distinguish over this cited art in the sense of 35 U.S.C. 102 and should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that in addition to objected to claims 2, 3 and 7-13, claims 1 and 4-6 also patentably distinguish over the cited art and should now be in condition for allowance. Accordingly, issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicant's petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (500.40583X00) and please credit any excess fees to such deposit account.

Respectfully submitted,



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